INNOVATING MINDFULLY WITH OPENTABLE: A RESTAURANT'S EXPERIENCE

Completed Research Paper

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Abstract

Whether, when, and how do small firms innovate with IT? To address this question, we apply the concept of mindful innovation to a case study of a small independent restaurant that adopted, implemented, and used OpenTable, an online reservation system. Combining first-hand experience, interviews, and observation, we present a live adventure this restaurant undertook with OpenTable, from making sense of the innovation, trying it out, implementing it, realizing the benefits and dealing with the limitations, all the way to abandoning it in the end. This restaurant's innovation journey has allowed us to assess the applicability of the mindfulness concept, disambiguate the concept's implications to small firms, and articulate the concept in a small-firm setting, advancing toward a theory of mindful innovation with IT for small firms.

Keywords: Information technology innovation, mindfulness, small business, restaurant, electronic reservation book

Introduction

As new information technology (IT) emerges almost constantly, and as the performance gap between winners and losers widens in many industries (Hopkins 2010), the capability to innovate with IT has become a necessity for firms to survive and thrive in today's economy. *Whether, when, and how to innovate with IT?* This is a fundamental question that managers need Information Systems research to answer (Fichman 2004). Addressing this question specifically, Swanson and Ramiller (2004) theorized the distinction between *mindful* firms that attend to IT innovations with reasoning grounded in their own organizational facts and specifics and *mindless* firms that lack such attention and grounding. Their notion of mindful and mindless innovation with IT has spawned an emerging stream of empirical research (e.g., Goswami et al. 2009; Sun and Fang 2010).

Interestingly, research on mindful innovation thus far has focused primarily on either large organizations or individual adopters. In contrast, relatively little is known about whether and to what extent the concept of mindful innovation may apply to small firms. Since small businesses employ half of all private sector employees and create more than half of the nonfarm private GDP in America alone, according to the U.S. Small Business Administration, it is important to study whether, when, and how small firms innovate with IT.

When applying the concept of mindful innovation to small firms, there are a few research issues to consider. First, as small firms are fundamentally different from their larger counterparts, it is unlikely for all hypotheses on mindful and mindless innovations formulated for large firms to be generalizable to small firms. Hence, it is important to conduct small-firm studies in order to delineate the applicability of the concept. Second, as most small businesses are resource constrained, they have to be mindful of the technologies they use, but they may not have sufficient resources to be so mindful. *To be mindful, or not to be?* That is the question for both small business owners and researchers. Lastly, if a small firm innovates mindfully by attending to "an IT innovation with reasoning grounded in its own organizational facts and specifics" (Swanson and Ramiller 2004, p. 559), research has yet to articulate what facts and specifics matter in the innovation process. Addressing these three apparent gaps in our knowledge of small firms innovating with IT, we have undertaken this single case study of how a small independent restaurant innovated with an online reservation system. In what follows, before describing the empirical context, we first lay the theoretical foundation for our case.

Theoretical Background

In this section, we review the research on IT innovations in small firms first and then on mindful innovations. Next, at the nexus of the two streams, we raise three research questions for this case study.

IT Innovations in Small Firms

Over the past several decades, studies of IT innovations have converged to a "dominant paradigm," whose main findings were summarized by Fichman (2004): "organizations that are larger, more diverse, have greater technical expertise, possess supportive senior management, operate in more competitive contexts, and perceive the innovation as more beneficial and compatible, are more likely to adopt a larger number of innovations, to adopt them earlier, and to implement them more thoroughly" (p. 315). We note that firm size routinely appeared in previous research to be a significant determinant of an organization's adoption and implementation of IT innovations. Further, according to Fichman's summary, one might infer that, ceteris paribus and compared to large or medium-sized firms, small firms should be the least likely to adopt IT innovations; and even when they do, they should adopt the least number of innovations, be among the last to adopt, and implement them the least thoroughly.

Despite such bleak inferences, a sustained stream of research on IT innovations in small firms has long existed at the intersection between IT innovation research and small business research. One premise for this research stream is that small firms are fundamentally different from large firms (Thong 1999). For example, small firms often have highly centralized structures, where most of the key decisions are made at the top (Mintzberg 1979). Therefore the attitude of a top manager in a small firm toward an IT innovation often matters significantly to the firm's ultimate relationship with the innovation, more so than in a large

firm. Another characteristic of small firms is that employees at a small business are usually generalists, juggling tasks across several functions (Blili and Raymond 1993). With primarily generalist workforces, small firms often lack specialized technical knowledge and skills required for successful adoption and implementation of IT innovations (DeLone 1988). Such unique characteristics of small firms suggest that firm size may interact with other drivers of IT innovations. This interaction makes the research on IT innovations in small firms both valuable and distinctive.

Most studies of small firms innovating with IT have focused on the factors that influence the adoption and implementation of new IT. Synthesizing previous research, Thong (1999) developed an integrative model that specifies contextual variables such as the characteristics of the decision-makers, information systems, organizations, and environment as primary determinants of adoption in small firms. Similarly, a research model based on a meta-analysis suggests that six factors including perceived usefulness, cost, compatibility, competitive advantage, top management support, and organizational size determine the implementation of computer-mediated communication technologies in small firms (Premkumar 2003).

In contrast to the numerous studies of adoption and implementation determinants, a small number of studies have recently gone beyond the usual focus and investigated other aspects of IT innovation in small firms. First, innovation activities or processes beyond adoption and implementation are examined. For example, Li et al. (2011) studied the decision factors that drive both the adoption and post-adoption continued use of online direct sales channels by small and medium-sized firms. Second, it has been found that IT can help small firms develop innovative products and processes. For instance, Brynjolfsson (2009) reported that Animoto, a startup that combines customers' photos and music into MTV-style movies, employed cloud computing to host its innovative service when its customer base jumped from 5,000 to 750,000 in just three days. Finally, whether new products and processes are enabled by IT, IT has been found to link product and process innovations to the performance of small firms (Dibrell et al. 2008).

These fresh findings indicate that IT innovations in small firms involve more processes, activities, and outcomes than adoption and implementation and that research may break new ground by expanding the focus to analyze the whole course of IT innovations in small firms. Accordingly, the concept of mindfulness encompasses most, if not all, processes in a firm's IT innovation and thus may offer theoretical insights needed for analysis that goes beyond adoption and implementation studies.

Mindful and Mindless Innovation with IT

Observing carefully considered IT innovations on the one hand and hype-induced bandwagons on the other, Swanson and Ramiller (2004) drew on institutional sociology and cognitive psychology to conceptualize mindful and mindless innovation with IT. They defined that:

"[A]n organization is mindful in innovating with IT when it attends to an innovation with reasoning grounded in its own organizational facts and specifics. ... In contradistinction to mindfulness, an organization is mindless in innovating with IT when its actions betray a lack of attention to organizational specifics (p. 563)."

Both mindfulness and mindlessness may manifest themselves and interact with each other throughout the whole course of a firm's innovation process, which consists of four component processes: comprehension, adoption, implementation, and assimilation (Swanson and Ramiller 2004). Comprehension is about a firm's understanding of the innovation in terms of its concepts, principles, and purposes and making judgments about *whether* adopting the innovation is good for the organization. Adoption happens *when* a firm decides to invest in the innovation. Implementation puts the innovation to work. During assimilation a firm integrates the innovation into everyday operations. The last two processes require the know-how as to *how* implementation and assimilation can best be pursued in each particular organization.

The concepts of mindful and mindless innovation have inspired empirical research that grows along at least two directions: (1) the determinants of mindfulness and (2) the consequences of mindfulness. As an example of the first direction, Goswami et al. (2009) found that company decision-maker's personality and organizational culture determine mindfulness, especially when adopting radical IT innovations. In the second direction, Sun and Fang (2010) reported that mindfulness can help reduce the complexity and uncertainty that prospective users may perceive about new technologies. Taken together, however, research on mindful innovation with IT has thus far focused mainly on either large firms or individual adopters.

Small Firms Innovating Mindfully (or Mindlessly) with IT

The concept of mindful innovation and the insights from empirical studies inspired by the concept may benefit the current research on small firms innovating with IT. For those still studying the adoption and implementation of the latest IT in small firms, the concept of mindful innovation brings fresh ideas about the opportunities and risks embedded in the adoption decisions and implementation strategies. For example, building upon the insight that organizational mindfulness is deeply embedded in the training and culture of innovative companies (Goswami et al. 2009), Stratopoulos and Lim (2010) predicted that the adoption of new IT in innovative firms would persist from year to year. Their notion of IT innovation persistence is a valuable addition to the extant literature on adoption. More importantly, for those going beyond the usual focus on adoption and implementation, the notion of mindful innovation offers an overarching concept for understanding comprehension, adoption, implementation, and assimilation, including the role IT plays in enabling product and process innovations and in enhancing firm performance based on such innovations.

When applying the mindful innovation concept to small firms, as previously mentioned, we need to resolve at least three issues. First, the hypotheses and insights derived mainly from studies of large firms are subject to empirical tests in small firms, so we can draw the scope of the concept. Hence, *Research Question 1: Do the hypotheses on mindful and mindless innovations developed in the studies of large organizations apply to small firms innovating with IT?*

Second, a main insight regarding mindful innovation is that it takes resources to be mindful and firms lacking resources may choose strategically to be mindless when innovating with IT. For example, resource constrained firms may copy the "solutions" found, tested, and implemented by their wealthier peers. Since small firms usually do not have the slack resources to monitor and analyze new technologies (Franquesa and Brandyberry 2009), they may have to opt for mindlessness as a strategic choice. On the other hand, precisely because small firms lack resources, they have to invest in the technologies that most fit their needs; they can't afford to "jump on the bandwagon" mindlessly. To clarify this theoretical ambiguity, we raise *Research Question 2: Is a small firm mindful or mindless in innovating with IT?*

Lastly, if a small firm innovates mindfully with IT, i.e., it "attends to IT innovations with reasoning grounded in its own organizational facts and specifics," then what facts and specifics really matter in the innovation process? A good theory should articulate what facts and specifics matter and when they matter. Therefore, *Research Question 3: What organizational facts and specifics matter to a small firm innovating mindfully with IT?*

To address these research questions, we have chosen to study a small independent restaurant's innovation with an online reservation system.

Methods

Empirical Context

We chose to study the restaurant industry because 90 percent of the nearly 500,000 restaurant locations in the U.S. are small businesses – of special theoretical interest to us. In addition, the first author has 10 years of experience of managing restaurants. Restaurants innovate with IT because of its potential "to offer solutions to two enduring conundrums: how to get the word out when your place is new or (worse) no longer new, and how to fill seats on slow days and at slow times" (Collins 2011). One way that IT addresses these conundrums is through online promotions. The number of IT companies that specialize in online restaurant promotions is staggering. "Groupon, BlackboardEats, VillageVines and hundreds of other ventures are hurling sales-force cadres at restaurant managers" (Collins 2011). Although each of these services may have its unique offerings, the overall theme is the same: Use coupons to create customer buzz that will attract new customers, which may then lead to increasing repeat business.

We take a close look at one of these companies called OpenTable, which specializes in providing "solutions that form an online network connecting reservation-taking restaurants and people who dine at those restaurants" (OpenTable 2012). Started in 1998, OpenTable is now a publicly listed company that covers over 20,000 restaurants in 50 U.S. states as well as select international markets. OpenTable offers restaurants an electronic reservation book (ERB) system that allows customers to quickly find and book

reservations directly at their restaurant. Customers do this by either booking through the restaurant's website that uses an OpenTable API, OpenTable's website, or through OpenTable's mobile applications (M-App) on devices such as the iPhone and iPad. In addition, customers get rewarded by receiving dining points for reserving and dining at these OpenTable restaurant establishments.

We examine how one of these establishments innovated with OpenTable. This restaurant, with the pseudonym Alpha, is a small mom-and-pop Chinese restaurant located in the suburban area of a Mid-Atlantic state of America. Alpha has rush hours during weekend dinners and holidays, with Christmas Eve being their busiest day of the year. Alpha's customers are primarily elderly Jewish people. Approximately 90% of the customer base is considered repeat customers. Alpha has 10 employees during lunch, 12 at dinner, including chefs, auxiliary kitchen staff, cleaning staff, and waiters and waitresses. Senior management consists of the owner Bob, his wife and the senior manager Michelle, and the IT manager. For anonymity, Bob and Michelle are both pseudonyms.

Single-Case Design

We chose the single-case design for two main reasons. First, since Research Question 1 points to the applicability of the hypotheses on mindful and mindless innovations derived from studies of large firms to small firms, a single case has the potential to become a *critical case* (Yin 2003), where observation contradicting what the hypothesis predicts is made. Even a single critical case would be sufficient to "cast doubt on the theory" (Lee 1989). Second, the other two research questions involve the intricacies of the IT innovations in small firms. A single *revelatory case* is especially suitable for such research questions (Yin 2003). The IT manager of the restaurant not only provided panoramic access to the restaurant but also joined the research team. Such a rare opportunity and the revelatory nature of our study warrant the single-case design.

Data Collection

We collected data by three means: first-hand experience, interview, and observation. Until recently, the first author of this paper had worked at Alpha for 10 years as the IT manager. In addition to taking customer orders, he was responsible for all IT-related operations and innovations at Alpha. His first-hand knowledge provides a unique insight into Alpha's facts and specifics that might be critical to Alpha's IT innovations. He wrote down Alpha's innovation experience with OpenTable in a narrative form and worked with the other authors to clarify and synthesize the narrative.

We also did interviews to complement the first author's experience in order to minimize the potential bias toward his personal views. The second author, unaffiliated with Alpha, visited Alpha in March 2011 and interviewed all members of Alpha's management: Bob, Michelle, and the IT manager. They were the primary users of OpenTable's ERB at Alpha. The semi-structured interviews allow "evidence triangulation" (Denzin and Lincoln 1998). The interviewer prepared eight open-ended questions regarding the adoption, implementation/use, benefits/limitations, and future use of OpenTable (Table 1).

Table 1. Interview Questions

1. Adoption	Why did Alpha adopt OpenTable and what was your expectation?
2. Implementation/Use	How comfortable are you with using OpenTable?
3. Benefits/limitations	Does OpenTable help you save time with reservations and operations?
4. Benefits/limitations	Does OpenTable help you improve service with a guest database?
5. Benefits/limitations	Does OpenTable help you maximize efficiency with table management tools?
6. Benefits/limitations	Does OpenTable help you attract repeat business with email marketing?
7. Benefits/limitations	Does OpenTable help you gain more exposure from its partners?
8. Future use	Would you like to continue using OpenTable at Alpha in the future?

In addition to the first-hand experience and interviews, the second author also observed all three managers using the system for two hours during lunchtime on a weekday in March 2011. She took notes while observing and asked questions to the IT manager who provided further explanation.

Data Analysis

Our qualitative data analysis has two levels (Miles and Huberman 1994): a general "etic" level and a specific "emic" level. At the *etic* level, we grouped our data in Swanson and Ramiller's (2004) four component processes of innovation: comprehension, adoption, implementation, and assimilation. It turns out that the first-hand narrative mainly covers comprehension, adoption, and implementation and that the interviews and observation are primarily concerned with assimilation, though overlaps exist.

Also at this level, we operationalized the conceptual definitions of "mindfulness" and "mindlessness" by looking in the data for evidence of the five attributes of mindfulness (Weick and Sutcliffe 2001; Weick et al. 1999): preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise; and for the three conditions of mindlessness (Swanson and Ramiller 2004): attention deferral, contextual insensitivity, and institutional preemption.

At the *emic* level, we derived a number of codes bottom-up from the data to describe both the benefits (e.g., "increased operational efficiency" and "improved customer relationship management") and limitations ("limited marketing capabilities" and "increased management workload") of OpenTable at Alpha (Strauss and Corbin 1998). To understand the organizational facts and specifics, we also identified a series of factors such as "technical," "organizational," "industry," and "culture," which mattered to Alpha's innovation with OpenTable in various component processes. This two-level scheme stabilized after three rounds of annotation until we had reasonable confidence in our interpretations of the data. In the next section, we combine the first-hand narrative, interviews, and observation, aiming to give a trustworthy account of Alpha's innovation processes and outcomes.

Alpha Innovating with OpenTable

Comprehension

In November 2006, Alpha's IT manager saw an OpenTable ERB system at a restaurant that he frequented in his neighborhood. Curious about the innovation, he went to OpenTable's website and found a microsite for restaurateurs, where OpenTable listed six benefits for the restaurants (OpenTable 2012): (1) save time with automated reservations; (2) improve service with a powerful guest database; (3) maximize efficiency with table management tools; (4) attract repeat business with email marketing; (5) join the network that seats 5 million diners monthly; and (6) gain more exposure from hundreds of partners.

Before telling Bob about OpenTable, the IT manager wanted to learn more about the service by first trying it as a customer with other restaurants. It was a positive experience. Not only was he able to efficiently make reservations at the restaurants, he could also easily change the reservations on his computer. He received dining points at these restaurants when he booked with OpenTable. Points were not given if the booking took place on the restaurant's website. So he made most of his reservations using OpenTable's site. Each time he reserved and dined at an OpenTable establishment, he received 100 points. After totaling 2,000 points, he went on OpenTable's site to request a $20 check, which arrived in two weeks. He had 180 days to use the check at OpenTable establishments.

At this point, the IT manager told Bob about his experience with OpenTable and how it might work at Alpha. Throughout 2007 and the first half of 2008, Alpha was doing quite well. As a result, Bob did not seem interested in adopting OpenTable at Alpha. When the economic recession began in late 2008, however, more tables were being underutilized. When the IT manager mentioned OpenTable to him again in 2009, Bob became more interested and asked the IT manager why Alpha should consider adopting it.

Adoption

Throughout 2009, Bob and the IT manager discussed about OpenTable and Alpha eventually adopted OpenTable in May 2010. Several reasons went into Bob's nearly 1.5-year long decision-making. First, many of OpenTable's listed benefits for restaurateurs resonated with the issues that Bob wanted

addressed at Alpha. For example, OpenTable promised that restaurants would save time with automated reservations. Bob wanted to increase reservation process efficiency and reduce associated overhead. Before OpenTable, Bob and Michelle would take future reservations in a planner and same-day reservations on a daily seating chart. Because everything was done with pencil and paper, reservations occasionally would be missing phone numbers or even missed all together! Differences in handwriting also increased the chance that reservations were incorrectly copied over from the planner to the daily seating chart. In addition, OpenTable also offered a guest database that seemed to coincide with Bob's interest in a customer relationship management (CRM) system to help offer better service for his repeat customers. Due to Alpha's long history in the community, many Alpha's customers grew up with Alpha's food. In fact, many of these repeat customers had their own families and brought their children to eat at Alpha as well. This neighborhood gem tradition of eating at Alpha made it crucial for Bob to establish relationships with his customers. Although Bob and Michelle had successfully done this purely by memory, Bob expressed interest of wanting a CRM system that would help Michelle and himself.

By joining OpenTable's network that seats 5 million diners monthly, Bob expected that the network would also help increase the number of customers. More specifically, since weekend business was already quite busy, Bob wanted to increase diners on weekdays and also during specific holidays, such as Valentine's Day. This meant that not only did he want more customers but also younger and more affluent customers who would more likely come out on these occasions. Bob believed that younger customers would be more interested in technology innovations such as OpenTable than the older customers. In addition, the restaurants where Alpha's IT manager tried OpenTable were mostly considered high-end fine dining. Hence Bob believed that the diners that OpenTable seats might be relatively more affluent.

Second, Bob had a friend who owned an Italian restaurant that also used OpenTable. That friend raved about OpenTable and told Bob that it would help him solve most of the issues that he wanted to address. For example, this Italian restaurant gets over 90% of their Valentine's Day reservations from OpenTable diners. In addition, this Italian restaurant also made it to OpenTable's Top-10 of the area's most booked restaurants. Bob felt confident that he would be able to achieve similar results if Alpha adopts OpenTable.

Third, from an IT perspective, since Bob had an IT manager who was capable of addressing the majority of the IT-related issues that could possibly come from using OpenTable, he did not worry about OpenTable adversely affecting Alpha's operations. Lastly, the services that OpenTable provided were unique. Neither Bob nor the IT manager knew of any other company that offered online and offline reservation management, CRM, table management, and all the other services that OpenTable touted.

To acquire first-hand experience with the OpenTable's ERB system and pricing information, in May 2010 Bob asked his IT manager to set up a meeting with OpenTable. Within a week, an OpenTable saleswoman stopped by the restaurant with a laptop that had the OpenTable's ERB software preloaded for demonstration. The demo was given to Bob, Michelle, and the IT manager and lasted for approximately 2 hours as the saleswoman went through all the main functions of OpenTable's ERB that restaurants use to connect to OpenTable's network in addition to the main customer's interface OpenTable.com. The ERB is essentially the physical OpenTable computer system that one sees when walking into an OpenTable-enabled restaurant. When a customer makes a reservation online, for example, the OpenTable computer server makes a connection directly to the restaurant's ERB and receives real-time information regarding availability. When a reservation is made online, the ERB is then synchronized to reflect this change.

After the demo, they discussed pricing. The saleswoman mentioned that OpenTable did not have many Chinese restaurants on its network and that the company was aggressively trying to add them. She suspected that any restaurant owner who did not confidently believe that his/her restaurant offered great food and service tended not to join OpenTable since diners who reserved through OpenTable are offered to rate and write comments about their dining experiences. A deficient restaurant would get subpar reviews and may actually lose business because of this openness.

Although this reason may be true, Alpha's management did not believe it was the main issue. Instead, they believed that the following reasons might have caused the lack of participation of Chinese restaurants in the OpenTable network. First, many Chinese restaurants have management with limited English abilities, resulting in a preference of conducting business in Chinese. However, OpenTable assumes English as the working language. Second, the majority of Chinese restaurants have management not comfortable with computer technologies. OpenTable, as will be described during the implementation and

assimilation subsections, required a high level of technological know-how. Third, most Chinese restaurants compete by offering very low prices and maintaining a thin profit margin. OpenTable's fees could eliminate the little amount of profitability at these types of restaurants.

For the most part, these reasons were not issues for Alpha. Alpha's management was very comfortable in conducting its business in English. Alpha's IT manager had the technological know-how to implement OpenTable. Alpha catered to customers who expect high quality food. For example, Alpha only served white meat chicken, much more expensive than its dark meat alternative. As a result, Alpha's prices were higher than its "cheaper" competitors. But even so, Alpha did not necessarily have a dramatically larger profit margin and thus OpenTable fees were still a concern for Bob. For example, if four people decided to get an appetizer and an entrée to share, given Alpha's average price for such dishes, OpenTable's $4 charge for this reservation would be equivalent to a 25% discount on an already underutilized table! The saleswoman told Bob that this was a problem that all restaurants had. To address this concern, OpenTable uses an honor system that allows the restaurant to change the number of guests in the reservation so that it may more accurately reflect the table's check and utilization. The saleswoman quoted a one-time installation fee of $650, which she discounted from $1,000 due to their interest in adding more Chinese restaurants, and also a monthly charge of $211 for using the ERB system. After learning about all this, Bob signed up for a 1-year minimum contract with OpenTable. Within a week, a Michigan-based project manager contacted Bob and his IT manager via e-mail regarding implementation.

Implementation

The project manager's e-mail asked Alpha to provide information regarding a company logo, floor plan, site survey, connectivity details, and webmaster. The floor plan was a hand drawn diagram of Alpha's seating chart, including table numbers and seating capacity. The site survey allowed restaurateurs to provide the information that OpenTable would use to customize the ERB and the restaurant's public profile page on their network. It is interesting to note that in the survey Alpha could select from only three levels of pricing: $30 and under, $31-$50, or $50 and over. Although the $30 per person upper limit of the lowest price range was still much higher than what a typical diner would normally spend at Alpha, Alpha selected $30 and under as no lower range was available.

Connectivity details pertained to technical requirements that Alpha had to meet prior to installation. In Alpha's case, the modem/router was located in the back office but the host table, where the OpenTable ERB system would be, was located near the front of the restaurant. Bob asked an electrician friend to help run CAT 5 cabling (wireless not accepted) and power lines from the back to the front of the restaurant. The IT manager finished the technical wiring by cutting, striping, punching, terminating, and testing the cables. This insourcing of technical know-how allowed Bob to save thousands of dollars. Finally, OpenTable emailed the IT manager the code that would integrate an OpenTable search module directly into a page on the restaurant's website. This entire process of getting Alpha ready for OpenTable to come and install the ERB system took approximately one month.

Installation of the ERB system took place on a weekday during Alpha's slowest time, typically 1:30 pm-4:30 pm. When the installer came, he configured the router to set up the necessary port forwarding and then customized the reservation sheet on the ERB based on his own experience for restaurants of Alpha's size in order to minimize an over-booking situation. Once setup was done, the installer took approximately two hours to train Bob and Michelle and answer questions they had on the ERB.

Assimilation

Shortly after the installation, Bob received standard emails that welcomed him to OpenTable, including a place to offer feedback. But other than that, Alpha managers were left on their own to figure out how to make best use of it. Neither the saleswoman nor the project manager followed up with Alpha. As Alpha assimilated OpenTable, the management experienced multiple benefits and limitations.

Streamlined reservation processes

OpenTable transformed Alpha's reservation process from paper-based to real-time by allowing customers to directly reserve tables online, digitizing the reservation records. This direct reservation process also

freed up the managers since they did not have to process reservations for customers who used OpenTable. For customers who did not use OpenTable, however, managers continued using the traditional methods (over phone or by walk-in) and transferred the reservations to OpenTable ERB.

Increased operational efficiency

OpenTable's ERB also increased Alpha's operational efficiency by making table management easier and more convenient. By using ERB's table timers, managers could easily keep track how long each table had been sat for. Once a table was sat, as shown in Figure 1, the system automatically started a timer for that table. For example, in Figure 1, table C5's timer shows that the customers had been seated for 43 minutes. The timer is green because 43 minutes was still within the normal turnaround time of that table size. Table E5 is yellow because it was approaching the limits of the normal turnaround for its size. Table E3 has a red timer because it has already been 1 hour and 44 minutes, well beyond the normal turnaround for its party size. When a table turned yellow or red, management could pay closer attention to the table and make sure that the longer than usual turnaround was not caused by a waiter's poor performance. In addition, by literally looking at what was on (or not on) the table and taking into account how long the table had been sat for, managers could provide better dining experience by ensuring timely service. For example, table A4 had been sat for 10 minutes in Figure 1. If water and tea had not yet been served on this table, management would have made sure to get those items to the table as quickly as possible.

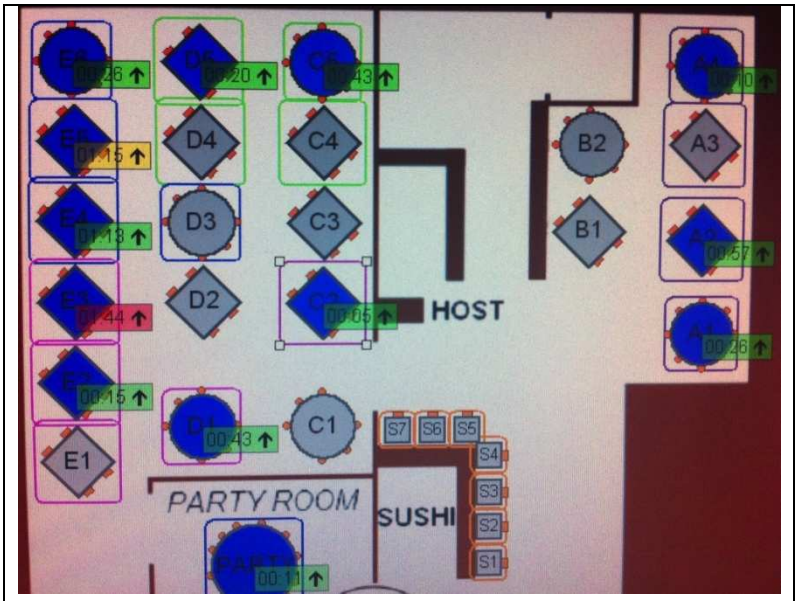

Figure 1. OpenTable's Table Timers

Improved customer relationship management

OpenTable's ERB helped Alpha improve customer services. For example, a guest note is specific to each guest. If a certain guest always wanted a certain table, every time that guest made a reservation, the guest note would be there to remind management of this guest's preference. Further, using OpenTable's ERB also helped Alpha build and maintain customer relationships. Alpha's managers could always go back to check on a customer's reservation history, allowing them to provide even more personalized service. If it had been over a long period of time, managers could greet the customer by saying that it had been awhile since they last saw him/her. By greeting customers like this, Alpha was able to express to the customers how valuable their business was. In the interview, Bob mentioned that, by using OpenTable, it was much easier to remember each customer's name than before. He believed that once the relationship with a customer had been built, the customer would be inclined to return in the future. Additionally, the CRM features helped transfer easily all customer information from one manager to all others using the system.

Improved online reputation

OpenTable allowed customers to share their dining experiences with the public via OpenTable's site. The overall glowing reviews that Alpha received from OpenTable diners helped improve Alpha's online reputation. For instance, a review was written on April 2, 2011: "We count on [Alpha] to be consistent. We love the sushi, the peking duck and lettuce wraps. The service is excellent. Menu [is] quite extensive but we have our favorites." This reviewer gave food and service at Alpha an "Outstanding" (5/5) rating. In addition, these reviews were visible not only to visitors on OpenTable's site for Alpha, but also on the more highly-trafficked Google Places listing for Alpha that aggregates online reviews.

Despite these benefits, Alpha also experienced several limitations during its assimilation of OpenTable.

Limited marketing capabilities

OpenTable had accounted for a small percentage of everyday covers (a cover represents an individual diner). On Alpha's busiest days, Friday through Sunday, OpenTable accounted for only 5% to 9% of total covers. This represented just around 2 to 3 OpenTable reservations on Alpha's busiest days. All three Alpha managers were not satisfied by OpenTable's marketing performance. Initially, the managers expected that the sophisticated high-tech image OpenTable carried would attract a younger customer base. Not only did OpenTable fail at this, it also did not help Alpha attract new customers at any age. Bob pointed out in the interview: "Among customers who used OpenTable for reservations, over 90% of them are return customers."

Another benefit OpenTable claimed was its ability to "attract repeat business with email marketing." OpenTable did not deliver this benefit either. Most customers who called for reservations refused to give their emails. Most customers who reserved via OpenTable did not give their emails either. Further, due to Alpha's elderly customer base, some customers reported that they did not even have email addresses! Thus, Alpha's OpenTable ERB contained virtually no emails, even after almost one year of use. Apparently, OpenTable's claim on the marketing benefit did not realize at Alpha, where OpenTable ERB system functioned more as a specialized restaurant management system than as a marketing tool.

Increased management workload

While assimilating OpenTable, Alpha managers found that their workload increased. Prior to using OpenTable, waiters would be randomly assigned to a station (a collection of tables) each day. Some stations have larger tables or a large party room associated with them and thus the potential total cover is larger than stations with only small tables. Alpha's random station assignment made it fair for the waiters so that no one waiter would always get the larger cover count stations, hence potentially higher tips.

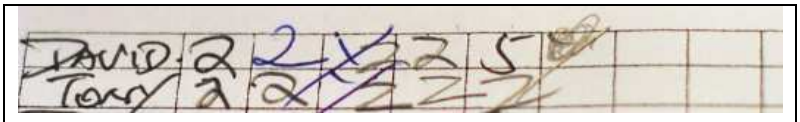

Figure 2. Alpha's Original Cover Count

Figure 2 illustrates Alpha's paper-and-pencil-based table management system, showing that the waiter David had station 1 and 14 total covers and the waiter Tony had station 2 and 11 total covers. Each table that a waiter received was written into one box in the grid. David's first 2 tables had 2 covers and his last table had 5 covers. Management could quickly ensure that each waiter received similar table (not cover) totals by ensuring that the number of boxes filled out next to each waiter was relatively the same. In the default scenario, tables were given to the waiters sequentially. Based on Figure 2, for example, the next table would go to David. And after that, it would be Tony's turn. And then it would go back to David's turn. In contrast, OpenTable's ERB (Figure 3) only displays cover count information on the main seating screen, implying that seating should be done purely by cover count. This logic made it hard for managers to process any seating scenario that would require table count information, such as the default sequential station seating. For example, the main seating screen (Figure 3) did not display table count.

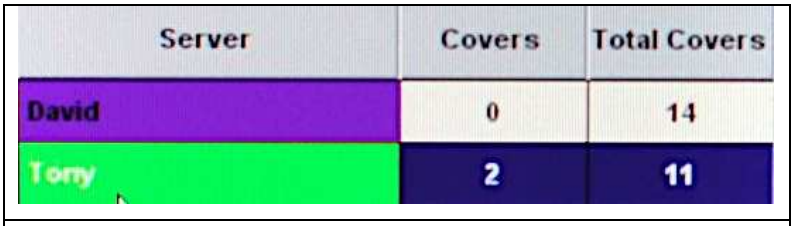

Figure 3. OpenTable Cover Count

Nonetheless, OpenTable did track the total number of tables that a waiter had been given in a submenu called "Server Details," as shown in Figure 4. When the IT manager showed Bob how to do this, Bob responded that it still didn't help the default, hence most commonly used, sequential seating scenario because although it had table count, it did not visually make it easy for one to see which waiter was last given a table. Due to the mismatch between Alpha's table-count-based table management logic and OpenTable cover-count-based logic, Alpha's managers had to track the details of each table and station both on paper and in the ERB, increasing their workload.

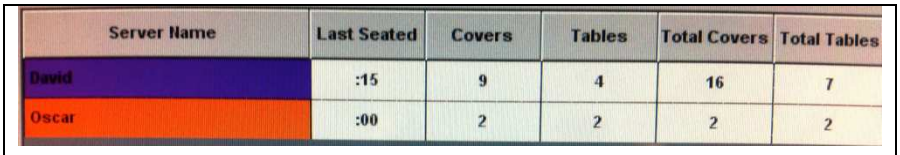

Figure 4. OpenTable Server Details Submenu

Table 2. Number of Customers Using OpenTable

Month	Cust. from OpenTable	Cust. from Own Site	Total Cust.	% from OpenTable	% from Own Site
2011-Feb	38	14	52	73%	27%
2011-Jan	23	11	34	68%	32%
2010-Dec	26	22	48	54%	46%
2010-Nov	22	0	22	100%	0%
2010-Oct	22	12	34	65%	35%
2010-Sep	21	15	36	58%	42%
2010-Aug	30	19	49	61%	39%
2010-Jul	30	24	54	56%	44%
2010-Jun	6	0	6	100%	0%
Average	**24**	**13**	**37**	**71%**	**29%**

Economic loss

Regarding one of the most important metrics of a business – profitability, Michelle stated in the interview that Alpha had been actually losing money by using OpenTable. Table 2 shows the actual data exported from Alpha's OpenTable ERB system. Alpha averaged 37 total OpenTable reservations each month, 71% from diners using OpenTable.com or its M-App and the remaining 29% from Alpha's website via OpenTable's API. Based on OpenTable's pricing structure of $1 per cover from OpenTable system and $0.25 per cover from the restaurant's site, Alpha's annual OpenTable marginal cover cost was $348.

Alpha's total revenue from OpenTable customers for the first year was $999. Taking OpenTable's monthly service charge of $211 and multiplying it by 12 yields a total annual fixed cost of using OpenTable $2,532. Even without considering the one-time installation fee of $650, Alpha lost $1,881 in the first year due to OpenTable. Financially, OpenTable was seemingly a money-losing proposition for Alpha.

Abandonment

Popular holiday reservations, such as for Christmas and New Year's Eve, are typically made months in advance at Alpha. One of Bob's reasons for adopting OpenTable was to help increase the reservations on holidays. During the end of 2010, Bob attributed the lack of difference that OpenTable made for his holiday reservations to the fact that OpenTable was relatively new to Alpha. However, when the end of 2011 approached, and the number of holiday reservations attributed to OpenTable still showed no signs of improvement, Bob decided that the "newness" of the system was not the issue. Alpha's primary customer base, even after adopting OpenTable, was still made up of older generation of Jewish people. Bob felt that this generational mismatch of IT and people was a main cause of OpenTable's poor marketing performance at Alpha. The economic consequences of using OpenTable did not help prove otherwise.

This being said, OpenTable did allow Bob to have a taste of the operational benefits that an IT innovation could bring to Alpha – benefits that, if possible, could somehow remain. Thus before cancelling OpenTable, Bob asked his IT manager to research software that focused on seating management. Since the focus was on internal seating management, monthly and per-seat fees should no longer apply, making such a system more affordable and relevant to Alpha. Unfortunately, the IT manager could not find any affordable off-the-shelf systems due to the fact that companies offering such seating management software offset this lack of monthly future streams of revenue with extremely high one-time costs.

Disappointed by this news, and the lack of confidence that OpenTable could ever generate a profit, or break even for that matter, in November 2011 Bob finally asked Michelle to call OpenTable to cancel the service. After hearing Michelle's explanation on how OpenTable's benefits had not justified its costs, an OpenTable representative simply said: "That's too bad," and took no further action to keep Alpha as an OpenTable customer. Michelle was informed that boxes with pre-paid shipping labels would be sent to Alpha and that all OpenTable components that were originally shipped to Alpha had to be sent back. Lastly, the OpenTable representative told Michelle to make sure to go through the ERB and write down all future reservations that may have been automatically made through OpenTable without Michelle's or Bob's immediate knowledge, such as through the M-App, so that they would not be lost. There were only a handful of such reservations. Once the boxes arrived, the IT Manager disassembled and packed the OpenTable system and components and sent them back to OpenTable.

Discussion

It may sound disappointing indeed that Alpha's 5-year adventure with OpenTable did not reach assimilation, but ended in abandonment. From a theoretical point of view, we note that mindful innovations do not necessarily lead to assimilation. Swanson and Ramiller (2004) reminded: "A significant benefit of mindfulness is that it helps to open up the option to *reject* innovations" (p. 562, original emphasis). But how mindful/mindless was Alpha in innovating with OpenTable? In this section, we discuss this theoretical issue first and then the practical implications and limitations of the study.

Evidence of Mindfulness

In studying high reliability organizations (HROs) such as aircraft carriers and nuclear power stations, Weick and colleagues identified five attributes of mindfulness (Weick and Sutcliffe 2001; Weick et al. 1999): (1) preoccupation with failure, (2) reluctance to simplify interpretations, (3) sensitivity to operations, (4) commitment to resilience, and (5) deference to expertise. Throughout Alpha's innovation with OpenTable, we have found evidence of all of these attributes.

First, mindful organizations are *preoccupied with the possibility of failure* and make significant efforts to prevent small failures from escalating and to avoid catastrophic failures. Alpha demonstrated this attribute at several points along the OpenTable innovation journey. For example, Bob's original consideration of OpenTable began as he was concerned with underutilized tables in late 2008.

Throughout the implementation and assimilation, Alpha managers were vigilant about the benefits and limitations of OpenTable. They were pleased to find that OpenTable ERB eliminated small failures such as reservation errors, but they were concerned with OpenTable's marketing failure. Their precise calculation based on Alpha's specific operation numbers led the eventual abandonment, allowing the small restaurant to avoid a disaster.

Second, mindful organizations refuse to take claims made on behalf of IT innovations at face value. For example, when the OpenTable saleswoman quoted the quality of food as a possible cause for the lack of Chinese restaurants on OpenTable's network, Bob did not accept that reason. Chinese restaurants serving high quality food like Alpha do not fit that generalized, over-simplistic characterization. Instead, he gave his own interpretations regarding the language requirement, IT expertise, and profitability. What's more, he evaluated each reason in Alpha's own context, manifesting precisely the second attribute of mindfulness: *reluctance to simplify interpretations*.

Third, mindful organizations are sensitive to the details of front-line operations. In some ways, it may be much easier for small firms like Alpha to be more detail-oriented than their large counterparts since few small firms have many management levels. For example, Alpha managers provided the customers with better dining experiences by combining the information from the ERB table timer and from a simple glance at the table with a potential issue. In addition to mere convenience, Alpha managers' analysis of the mismatch between OpenTable's and Alpha's seating management logics revealed a deeper *sensitivity to operations*. Without onsite observation of the operations, it would be impossible for us (the second and third authors) to understand why manager's workload increased after OpenTable had gone live.

Fourth, similarly, *commitment to resilience* would be relatively easier to make for small firms than for large ones. After all, small firms are nimble. Neither the IT manager's tryouts with OpenTable at other restaurants nor Bob's electrician friend's pre-installation service was too costly. The increased workload due to the seating management logic mismatch was largely manageable for the managers. An annual loss of $1,881 attributed to OpenTable was not too painful to swallow. Further, the essence of resilience is the ability "to become strong, healthy, or successful again after something bad happens," according to the *Webster's Dictionary*. Alpha managers demonstrated this ability by their *contingent engagement* (Swanson and Ramiller 2004) with OpenTable as represented by their experimenting, signing a 1-year minimum contract, and the eventual pullout. Throughout the innovation journey, they were monitoring and evaluating progress, benefits realized, and issues at hand, and made adjustments along the way. These resilient behaviors, in our opinion, represent a hallmark of human agency (Boudreau and Robey 2005).

Fifth, where innovation is concerned, mindful organizations are ready to relax the orderly hierarchy of authority so that those on the front-line with required expertise can make decisions. In small firms such as Alpha, division of labor was not always clear-cut. For example, even the IT manager waited tables on very busy nights such as Christmas Eve. Nonetheless, when it comes to expertise, division and *deference* were ever-present. The operational, financial, and technical expertise that Bob, Michelle, and their IT manager possessed respectively in this case were both distinctive and synergistic. These three managers knew and respected each other's expertise. For example, Bob asked his IT manager to arrange the onsite demo, but asked Michelle to call OpenTable to cancel it.

Lastly, since these five attributes of mindfulness were identified in studies of large HROs, while we found evidence of each attribute in our case, we have identified at least one additional attribute, which we would call "*situated curiosity*." Arguably curiosity is a human nature and today's innovation scene makes everyone always curious about something. What makes curiosity an attribute of mindfulness is its situated nature, as illustrated in this case. The IT manager's original desire to test OpenTable and Bob's evolving interest in the benefits and functions of OpenTable were both situated in Alpha's "own organizational facts and specifics." In the end, even after making the cancelation decision, Bob was still intrigued by OpenTable operational benefits and thus he asked the IT manager to research other seating management software. Such curiosity, when situated in the specific organizational context, indicates mindfulness.

Evidence of Mindlessness (or the Lack Thereof)

A mindless firm does not attend an IT innovation with reasoning grounded in its own facts (Swanson and Ramiller 2004). Empirically speaking, research on mindlessness should search for the absence of such

attention and grounding. However, searching for something absent is difficult (if not impossible). As a workaround, we looked in our data for the three conditions for mindless innovation as proposed by Swanson and Ramiller (2004).

The first condition is *attention deferral*, the act of delaying management's attention to the innovation. In the early stage of an innovation process, mindless organizations sometimes delay the comprehension until later stages because management's attention has been exhausted by other matters. In 2007 and 2008, Bob indeed postponed his own comprehension of OpenTable, but the delay occurred before Alpha adopted OpenTable. Therefore, strictly speaking, Alpha's comprehension of OpenTable was extended to a 3.5-year period (November 2006-May 2010) and the management's comprehension (e.g., the IT manager's testing and onsite demo) had been thorough before adoption.

The second condition is *contextual insensitivity*, possibly caused by organizational members who take their circumstances for granted or strategically ignore the circumstances such as in a business process reengineering (BPR) project. When Alpha innovated with OpenTable, we observed only the contrary. Every decision seemed to have been made based on careful assessment of benefits and costs to Alpha at each specific point of time. The third condition is *institutional preemption*, while organizations mindlessly adopt certain technologies and practices under regulative, normative, or cultural-cognitive pressures. Again, we found no evidence of such pressures. Overall, we found no evidence in our data that Alpha managers used the rationale "everyone else is doing it" to replace their own reasoning. Nonetheless, when deriving broader implications to practice and research, we bear in mind a caveat: Absence of evidence is not the same as evidence of absence.

Practical Implications

For small and independent restaurants like Alpha, foremost, mindful innovation with IT is not always a journey leading toward the assimilation of the new technology. Instead, mindful innovators, such as Alpha's managers, constantly monitor and assess the benefits and challenges of an innovation as it unfolds in their specific organizations and take next steps based on their assessments. Because success or failure is always contingent upon the current round of assessment, assimilation does not always indicate success and abandonment does not always suggest failure. Paradoxically, such contingency is an enduring quality of mindful innovation. Further, mindful innovation goes beyond a single round or a series of traditional cost-benefit analysis. Because multiple "organizational facts and specifics" matter, assessment of innovation progress and outcome should be multi-dimensional. Certain factors, such as economic gain or loss, are easier to quantify than others, such as operational efficiency and customer relationship. Therefore, mindful innovators gauge innovation progress and outcomes in multiple ways. What's more, managers should not assume that an IT innovation offers an equal amount of value amongst the various benefits claimed on behalf of the innovation. For example, Alpha realized much more operational benefits than marketing gain. Mindful managers should place more value on those benefits that matter more to the organization as they contingently engage with the innovation. Just as financial viability gradually outweighed operational efficiency at Alpha, mindful managers know that the significance of the benefits may change over time and when it does, it will be time for the next round of assessment and action.

Limitations

One obvious limitation of the study is that the first author was also an active participant in Alpha's OpenTable project and thus might have brought potential bias to the research. For this reason, we made earnest efforts to reduce the threat of the potential bias to the validity and reliability of our study. The second author also interviewed other managers at Alpha and independently observed the operation of OpenTable at Alpha. Both the second and third authors asked the first author to clarify ambiguous or inconsistent points found in the data. These "triangulation" efforts gave us reasonable confidence in the data and analysis, further enhanced by the benefits of first-hand data such as the richness and relative accuracy. Another limitation is related to the common characteristics of a single case study (Yin 2003). This case is apparently confined to OpenTable, Alpha, and the specific geographic location, study period, and data sources, and thus the case cannot be statistically generalized to other settings. For instance, we need to study other organizations to figure out whether the set of factors shaping Alpha's innovation processes and decisions matter or not to others. Nonetheless, even a single case like this one may be

analytically generalized to a theory of mindful IT innovation (Berthon et al. 2002; Yin 2003). The case study approach fits the emergent stage of theory development.

Conclusion: Small Firms Innovating Mindfully with IT

Throughout this case, Alpha's managers apparently attended to OpenTable "with reasoning grounded in their own organizational facts and specifics," making Alpha's OpenTable project an exemplar of mindful innovation. This case study contributes to the application of the mindful innovation concept to small firms in three useful ways: (1) assess the applicability of the concept; (2) disambiguate the concept's implications to small firms; and (3) articulate the concept in a small-firm setting. The three contributions correspond to the three research questions we raised at the beginning of the paper.

First, *do the hypotheses on mindful and mindless innovations developed in the studies of large organizations apply to small firms innovating with IT?* For example, Swanson and Ramiller (2004) posited: "The organization that innovates with IT will be most prone to mindlessness in its early engagement with the innovation. It will be less prone to mindlessness the longer it has been engaged with the innovation" (p. 567). In Alpha's case, we have found no evidence of mindlessness throughout Alpha's engagement with OpenTable from initial awareness to abandonment. Alpha's management was mindful from the very beginning since the IT manager's careful tryouts in other restaurants in 2007. Further, we did not find that the level of mindfulness either increase or decrease as Alpha became more engaged with OpenTable. As another example, Swanson and Ramiller (2004) also hypothesized: "Mindlessness in innovating with IT will be observed more widely among organizations with relatively poor recent performance. Mindfulness, in contrast, will be observed more widely among organizations with relatively good recent performance" (p. 573). In this case, Alpha was mindful both when it was doing well before the 2008 economic recession and when doing not so well since the recession. We observed mindfulness as a relatively fixed trait of Alpha's management, rather than a variable dependent on its recent performance. Speaking of trait, we recall Swanson and Ramiller's (2004) next proposition: "Mindlessness in innovating with IT will be observed more widely among organizations that are not IT sophisticated. Mindfulness, in contrast, will be observed more widely among organizations that are IT sophisticated" (p. 573). IT sophistication refers to an organization's in-house expertise and experience in implementing IT applications. Our case supports this argument in the sense that Alpha's mindfulness in innovating with OpenTable may in large part have stemmed from its IT sophistication, as its IT manager clearly demonstrated. These comparisons suggest that it is useful to apply the concept of mindful innovation to small organizations and study the similar or different behaviors as large and small firms innovate with IT. Since it is not possible to address all hypotheses related to mindful or mindless innovation with IT in one study, opportunities exist to further delineate the scope of the concept, and to formulate a theory of mindful innovation.

Second, *is a small firm mindful or mindless in innovating with IT?* Extant knowledge points to different directions. On the one hand, being mindful is costly and smaller firms may not have the resources to be mindful. On the other hand, precisely because they are resource constrained, small firms may be very careful with their IT investment and thus only adopt and implement innovations most fitting their "organizational facts and specifics." Alpha was mindful in this case and showed no signs of mindlessness. Further, it would be simplistic to consider either mindfulness or mindless as binary variables, and thus assessing and explaining the degree of mindfulness would be a natural next step of research.

Finally, *what organizational facts and specifics matter to a small firm innovating mindfully with IT?* In this case, the IT manager's positive tryouts, the success of Bob's Italian restaurant friend, and the need to reach a younger and richer customer base were all important factors that prompted Alpha's adoption of OpenTable. The economic recession was an additional trigger. Alpha's technical know-how and the managers' excellent English were crucial to its successful implementation of OpenTable. Financial concerns, however, dominated the cancelation decision. While this single case study has identified the above factors key to a small restaurant's mindful innovation with a new IT, we need to study more organizations to compare, contrast, and properly generalize.

In sum, the case of Alpha innovating with OpenTable has led us to the following three concluding ideas. First, certain hypotheses (such as the one on IT sophistication) on mindful and mindless innovations developed in studying large organizations do apply to small firms; whereas others (such as those related

to innovation stages and recent organizational performance) do not seem to apply. Second, we have found numerous evidences of mindful innovation by a small firm, but no evidence of mindless innovation as a small firm's strategic choice. Lastly, the organizational facts and specifics that matter to a small firm innovating mindfully with IT may include experimentation with the new IT, innovation success achieved by peer organizations, and management's technical know-how and communication skills. While this case has allowed us to think much deeper about IT innovations in small firms, we need more and sustained research to develop a grand theory to explain mindful and mindless innovations, predict innovation outcomes and consequences, and help entrepreneurs and managers in small firms answer the question eventually and definitively: *Whether, when, and how to innovate with IT?*

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